

# Completed Return-On-Investment Project Case Study



United States Department of Energy  
Office of Environmental Management  
Fact Sheet

## DWPF CO<sub>2</sub> Decontamination Unit Savannah River Site, South Carolina

### Original Problem

The Defense Waste Processing Facility (DWPF) uses liquid radiological decontamination agents for cleaning equipment from the process canyon to reduce radiological hazards prior to maintenance and waste management. Liquid waste is recycled through Site high level waste (HLW) tank farms for processing. These decontamination processes generate over 600,000 gallons of high level waste per year.

### The ROI Project Solution

SRS installed a carbon dioxide (CO<sub>2</sub>) decontamination system for most of the less aggressive decontamination jobs performed in the DWPF Remote Equipment Decon Cell (REDC). The CO<sub>2</sub> system does not generate any liquid waste that requires evaporation and treatment at the tank farm.



### DOE Monetary Benefits

Cost	\$335,000
Lifecycle Savings	\$3,120,000
Return on Investment	83 %

### Value Of Improvement

The CO<sub>2</sub> System is used ~10 hours per month and reduces the generation of 638,000 gallons of decontamination liquids per year. This results in ~\$312,000 per year in HLW processing cost savings based on a very conservative \$0.42/gal for evaporation and bottoms treatment at the HLW Tank Farm and chemical consumption savings from recycle waste water treatment at DWPF of \$0.067/gallon.

### Lifecycle Waste Reduction

Life Cycle Waste Reduction	24,000 m3
Operation Commencement Date	11/98
Project Useful Life (Years)	10 Years

### Benefits At-A-Glance

- Save valuable HLW evaporator capacity required to meet production commitments.
- Save ~\$312,000 per year in waste processing costs.

Building Upon An Office of Science and Technology Demonstration Success

## DWPF CO2 Decontamination Unit

### Savannah River Site, South Carolina

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#### Summary Data

ROI Priority Area:	Waste Management
ROI Project Type:	Source Reduction
Project Cost:	\$335,000
Lifecycle Savings:	\$3,120,000
Implementing Group:	EM – SRS Defense Waste Processing Facility
Benefiting Group:	EM
Useful Life Years:	10 years
Return On Investment:	83 %
Lifecycle Waste Reduction:	24,000 m3 of liquid wastewater
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